

TECHCIE
APR 28 2002
3001/2900RECEIVED
U.S. PATENT AND TRADEMARK OFFICE

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/960,226

DATE: 01/28/2002
TIME: 13:49:07

Input Set : A:\12243-19SeqLst.txt
Output Set: N:\CRF3\01282002\I960226.raw

3 <110> APPLICANT: Rose, David
 4 Kuntz, Douglas
 5 Van Den Elsen, Jean
 7 <120> TITLE OF INVENTION: MANNOSIDASE STRUCTURES
 9 <130> FILE REFERENCE: 12243.19USU1
 11 <140> CURRENT APPLICATION NUMBER: US 09/960,226
 12 <141> CURRENT FILING DATE: 2001-09-21
 14 <150> PRIOR APPLICATION NUMBER: US 60/263,458
 15 <151> PRIOR FILING DATE: 2001-01-23
 17 <150> PRIOR APPLICATION NUMBER: US 60/234,879
 18 <151> PRIOR FILING DATE: 2000-09-22
 20 <160> NUMBER OF SEQ ID NOS: 9
 22 <170> SOFTWARE: PatentIn version 3.1
 24 <210> SEQ ID NO: 1
 25 <211> LENGTH: 3198
 26 <212> TYPE: DNA
 27 <213> ORGANISM: Drosophila melanogaster
 29 <220> FEATURE:
 30 <221> NAME/KEY: CDS
 31 <222> LOCATION: (1)..(3198)
 32 <223> OTHER INFORMATION:
 35 <400> SEQUENCE: 1
 36 atg aag tta tgc ata tta ctg gcc gtc gtg gcc ttt gtt ggc ctc tcg 48
 37 Met Lys Leu Cys Ile Leu Leu Ala Val Val Ala Phe Val Gly Leu Ser
 38 1 5 10 15
 40 ctc ggg aga tct agc cac cat cat cat cac gga gaa ttc gac gat 96
 41 Leu Gly Arg Ser Ser His His His His His Gly Glu Phe Asp Asp
 42 20 25 30
 44 cca ata aga cct cca ctt aaa gtg gct cgt tcc ccg agg cca ggg caa 144
 45 Pro Ile Arg Pro Pro Leu Lys Val Ala Arg Ser Pro Arg Pro Gly Gln
 46 35 40 45
 48 tgc caa gat gtg gtc caa gac gtg ccc aat gtg gat gta cag atg ctg 192
 49 Cys Gln Asp Val Val Gln Asp Val Pro Asn Val Asp Val Gln Met Leu
 50 50 55 60
 52 gag cta tac gat cgc atg tcc ttc aag gac ata gat gga ggc gtg tgg 240
 53 Glu Leu Tyr Asp Arg Met Ser Phe Lys Asp Ile Asp Gly Gly Val Trp
 54 65 70 75 80
 56 aaa cag ggc tgg aac att aag tac gat cca ctg aag tac aac gcc cat 288
 57 Lys Gln Gly Trp Asn Ile Lys Tyr Asp Pro Leu Lys Tyr Asn Ala His
 58 85 90 95
 60 cac aaa cta aaa gtc ttc gtt gtg ccg cac tcg cac aac gat cct gga 336
 61 His Lys Leu Lys Val Phe Val Val Pro His Ser His Asn Asp Pro Gly
 62 100 105 110

R.S.
ENTERED

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/960,226

DATE: 01/28/2002
TIME: 13:49:07

Input Set : A:\12243-19SeqLst.txt
Output Set: N:\CRF3\01282002\I960226.raw

64	tgg	att	cag	acg	ttt	gag	gaa	tac	tac	cag	cac	gac	acc	aag	cac	atc	384
65	Trp	Ile	Gln	Thr	Phe	Glu	Glu	Tyr	Tyr	Gln	His	Asp	Thr	Lys	His	Ile	
66		115				120				125							
68	ctg	tcc	aat	gca	cta	cg	cat	ctg	cac	gac	aat	ccc	gag	atg	aag	ttc	432
69	Leu	Ser	Asn	Ala	Leu	Arg	His	Leu	His	Asp	Asn	Pro	Glu	Met	Lys	Phe	
70		130				135			140								
72	atc	tgg	g	g	g	a	t	c	t	c	t	t	c	a	t	ttg	480
73	Ile	Trp	Ala	Glu	Ile	Ser	Tyr	Phe	Ala	Arg	Phe	Tyr	His	Asp	Leu	Gly	
74	145				150				155			160					
76	gag	aac	aaa	aag	ctg	cag	atg	aag	tcc	att	gta	aag	aat	gga	cag	ttg	528
77	Glu	Asn	Lys	Lys	Leu	Gln	Met	Lys	Ser	Ile	Val	Lys	Asn	Gly	Gln	Leu	
78		165			170				175								
80	gaa	ttg	gaa	ttt	gtg	act	gga	gga	tgg	gta	atg	ccg	gac	gag	gcc	aac	576
81	Glu	Leu	Glu	Phe	Val	Thr	Gly	Gly	Trp	Val	Met	Pro	Asp	Glu	Ala	Asn	
82		180			185				190								
84	tcc	cac	tgg	cga	aac	gta	ctg	ctg	cag	ctg	acc	gaa	ggg	caa	aca	tgg	624
85	Ser	His	Trp	Arg	Asn	Val	Leu	Leu	Gln	Leu	Thr	Glu	Gly	Gln	Thr	Trp	
86		195			200				205								
88	ttg	aag	caa	ttc	atg	aat	gtc	aca	ccc	act	gct	tcc	tgg	gcc	atc	gt	672
89	Leu	Lys	Gln	Phe	Met	Asn	Val	Thr	Pro	Thr	Ala	Ser	Trp	Ala	Ile	Asp	
90		210			215				220								
92	ccc	ttc	gga	cac	agt	ccc	act	atg	ccg	tac	att	ttg	cag	aag	agt	ggt	720
93	Pro	Phe	Gly	His	Ser	Pro	Thr	Met	Pro	Tyr	Ile	Leu	Gln	Lys	Ser	Gly	
94	225		230		235				240								
96	ttc	aag	aat	atg	ctt	atc	caa	agg	acg	cac	tat	tcg	gtt	aag	aag	gaa	768
97	Phe	Lys	Asn	Met	Ile	Gln	Arg	Thr	His	Tyr	Ser	Val	Lys	Lys	Glu		
98		245			250				255								
100	ctg	gcc	caa	cag	cga	cag	ctt	gag	ttc	ctg	tgg	cgc	cag	atc	tgg	gac	816
101	Leu	Ala	Gln	Gln	Arg	Gln	Leu	Glu	Phe	Leu	Trp	Arg	Gln	Ile	Trp	Asp	
102		260			265				270								
104	aac	aaa	ggg	gac	aca	gct	ctc	ttc	acc	cac	atg	atg	ccc	ttc	tac	tcg	864
105	Asn	Lys	Gly	Asp	Thr	Ala	Leu	Phe	Thr	His	Met	Met	Pro	Phe	Tyr	Ser	
106		275			280				285								
108	tac	gac	att	cct	cat	acc	tgt	ggt	cca	gat	ccc	aag	gtt	tgc	tgt	cag	912
109	Tyr	Asp	Ile	Pro	His	Thr	Cys	Gly	Pro	Asp	Pro	Lys	Val	Cys	Cys	Gln	
110		290			295				300								
112	ttc	gat	ttc	aaa	cga	atg	ggc	tcc	ttc	ggt	ttg	agt	tgt	cca	tgg	aag	960
113	Phe	Asp	Phe	Lys	Arg	Met	Gly	Ser	Phe	Gly	Leu	Ser	Cys	Pro	Trp	Lys	
114	305		310		315				320								
116	gtg	ccg	ccg	cgt	aca	atc	agt	gat	caa	aat	gtg	gca	gca	cgc	tca	gat	1008
117	Val	Pro	Pro	Arg	Thr	Ile	Ser	Asp	Gln	Asn	Val	Ala	Ala	Arg	Ser	Asp	
118		325			330				335								
120	ctg	ctg	gtt	gat	cag	tgg	aag	aag	gcc	gag	ctg	tat	cgc	aca	aac		1056
121	Leu	Leu	Val	Asp	Gln	Trp	Lys	Lys	Ala	Glu	Leu	Tyr	Arg	Thr	Asn		
122		340			345				350								
124	gtg	ctg	ctg	att	ccg	ttg	ggt	gac	gac	ttc	cgc	ttc	aag	cag	aac	acc	1104
125	Val	Leu	Leu	Ile	Pro	Leu	Gly	Asp	Asp	Phe	Arg	Phe	Lys	Gln	Asn	Thr	
126		355			360				365								
128	gag	tgg	gat	gtg	cag	cgc	gtg	aac	tac	gaa	agg	ctg	ttc	gaa	cac	atc	1152

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/960,226

DATE: 01/28/2002
TIME: 13:49:07

Input Set : A:\12243-19SeqLst.txt
Output Set: N:\CRF3\01282002\I960226.raw

129 Glu Trp Asp Val Gln Arg Val Asn Tyr Glu Arg Leu Phe Glu His Ile			
130 370	375	380	
132 aac agc cag gcc cac ttc aat gtc cag gcg cag ttc ggc aca ctg cag			1200
133 Asn Ser Gln Ala His Phe Asn Val Gln Ala Gln Phe Gly Thr Leu Gln			
134 385	390	395	400
136 gaa tac ttt gat gca gtg cac cag gcg gaa agg gcg gga caa gcc gag			1248
137 Glu Tyr Phe Asp Ala Val His Gln Ala Glu Arg Ala Gly Gln Ala Glu			
138 405	410	415	
140 ttt ccc acg cta agc ggt gac ttt ttc aca tac gcc gat cga tcg gat			1296
141 Phe Pro Thr Leu Ser Gly Asp Phe Phe Thr Tyr Ala Asp Arg Ser Asp			
142 420	425	430	
144 aac tat tgg agt ggc tac tac aca tcc cgc ccg tat cat aag cgc atg			1344
145 Asn Tyr Trp Ser Gly Tyr Tyr Thr Ser Arg Pro Tyr His Lys Arg Met			
146 435	440	445	
148 gac cgc gtc ctg atg cac tat gta cgt gca gca gaa atg ctt tcc gcc			1392
149 Asp Arg Val Leu Met His Tyr Val Arg Ala Ala Glu Met Leu Ser Ala			
150 450	455	460	
152 tgg cac tcc tgg gac ggt atg gcc cgc atc gag gaa cgt ctg gag cag			1440
153 Trp His Ser Trp Asp Gly Met Ala Arg Ile Glu Glu Arg Leu Glu Gln			
154 465	470	475	480
156 gcc cgc agg gag ctg tca ttg ttc cag cac cac gac ggt ata act ggc			1488
157 Ala Arg Arg Glu Leu Ser Leu Phe Gln His His Asp Gly Ile Thr Gly			
158 485	490	495	
160 aca gca aaa acg cac gta gtc gtc gac tac gag caa cgc atg cag gaa			1536
161 Thr Ala Lys Thr His Val Val Asp Tyr Glu Gln Arg Met Gln Glu			
162 500	505	510	
164 gct tta aaa gcc tgt caa atg gta atg caa cag tcg gtc tac cga ttg			1584
165 Ala Leu Lys Ala Cys Gln Met Val Met Gln Gln Ser Val Tyr Arg Leu			
166 515	520	525	
168 ctg aca aag ccc tcc atc tac agt ccg gac ttc agt ttc ycg tac ttt			1632
169 Leu Thr Lys Pro Ser Ile Tyr Ser Pro Asp Phe Ser Phe Xaa Tyr Phe			
170 530	535	540	
172 acg ctc gac gac tcc cgc tgg cca gga tct ggt gtg gag gac agt cga			1680
173 Thr Leu Asp Asp Ser Arg Trp Pro Gly Ser Gly Val Glu Asp Ser Arg			
174 545	550	555	560
176 acc acc ata ata ctg ggc gag gat ata ctg ccc tcc aag cat gtg gtg			1728
177 Thr Thr Ile Ile Leu Gly Glu Asp Ile Leu Pro Ser Lys His Val Val			
178 565	570	575	
180 atg cac aac acc ctg ccc cac tgg cgg gag cag ctg gtg gac ttt tat			1776
181 Met His Asn Thr Leu Pro His Trp Arg Glu Gln Leu Val Asp Phe Tyr			
182 580	585	590	
184 gta tcc agt ccg ttt gta agc gtt acc gac ttg gca aac aat ccg gtg			1824
185 Val Ser Ser Pro Phe Val Ser Val Thr Asp Leu Ala Asn Asn Pro Val			
186 595	600	605	
188 gag gct cag gtg tcc ccg gtg tgg agc tgg cac cac gac aca ctc aca			1872
189 Glu Ala Gln Val Ser Pro Val Trp Ser Trp His His Asp Thr Leu Thr			
190 610	615	620	
192 aag act atc cac cca caa ggc tcc acc acc aag tac cgc atc atc ttc			1920
193 Lys Thr Ile His Pro Gln Gly Ser Thr Thr Lys Tyr Arg Ile Ile Phe			

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/960,226

DATE: 01/28/2002
TIME: 13:49:07

Input Set : A:\12243-19SeqLst.txt
Output Set: N:\CRF3\01282002\I960226.raw

194	625	630	635	640	
196	aag gct cgg gtg ccg ccc atg ggc ttg gcc acc tac gtt tta acc atc				1968
197	Lys Ala Arg Val Pro Pro Met Gly Leu Ala Thr Tyr Val Leu Thr Ile				
198	645	650	655		
200	tcc gat tcc aag cca gag cac acc tcg tat gca tcg aat ctc ttg ctc				2016
201	Ser Asp Ser Lys Pro Glu His Thr Ser Tyr Ala Ser Asn Leu Leu Leu				
202	660	665	670		
204	cgt aaa aac ccg act tcg tta cca ttg ggc caa tat ccg gag gat gtg				2064
205	Arg Lys Asn Pro Thr Ser Leu Pro Leu Gly Gln Tyr Pro Glu Asp Val				
206	675	680	685		
208	aag ttt ggc gat cct cga gag atc tca ttg cgg gtt aac gga ccc				2112
209	Lys Phe Gly Asp Pro Arg Glu Ile Ser Leu Arg Val Gly Asn Gly Pro				
210	690	695	700		
212	acc ttg gcc ttt tcg gag cag ggt ctc ctt aag tcc att cag ctt act				2160
213	Thr Leu Ala Phe Ser Glu Gln Gly Leu Leu Lys Ser Ile Gln Leu Thr				
214	705	710	715	720	
216	cag gat agc cca cat gta ccg gtg cac ttc aag ttc ctc aag tat ggc				2208
217	Gln Asp Ser Pro His Val Pro Val His Phe Lys Phe Leu Lys Tyr Gly				
218	725	730	735		
220	gtt cga tcg cat ggc gat aga tcc ggt gcc tat ctg ttc ctg ccc aat				2256
221	Val Arg Ser His Gly Asp Arg Ser Gly Ala Tyr Leu Phe Leu Pro Asn				
222	740	745	750		
224	gga cca gct tcg cca gtc gag ctt ggc cag cca gtg gtc ctg gtg act				2304
225	Gly Pro Ala Ser Pro Val Glu Leu Gly Gln Pro Val Val Leu Val Thr				
226	755	760	765		
228	aag ggc aaa ctg gag tog tcc gtg agc gtg gga ctt ccg agc gtg gtg				2352
229	Lys Gly Lys Leu Glu Ser Ser Val Val Gly Leu Pro Ser Val Val				
230	770	775	780		
232	cac cag acg ata atg cgc ggt ggt gca cct gag att cgc aat ctg gtg				2400
233	His Gln Thr Ile Met Arg Gly Gly Ala Pro Glu Ile Arg Asn Leu Val				
234	785	790	795	800	
236	gat ata ggc tca ctg gac aac acg gag atc gtg atg cgc ttg gag acg				2448
237	Asp Ile Gly Ser Leu Asp Asn Thr Glu Ile Val Met Arg Leu Glu Thr				
238	805	810	815		
240	cat atc gac agc ggc gat atc ttc tac acg gat ctc aat gga ttg caa				2496
241	His Ile Asp Ser Gly Asp Ile Phe Tyr Thr Asp Leu Asn Gly Leu Gln				
242	820	825	830		
244	ttt atc aag agg cgg cgt ttg gac aaa tta cct ttg cag aac aat				2544
245	Phe Ile Lys Arg Arg Leu Asp Lys Leu Pro Leu Gln Ala Asn Tyr				
246	835	840	845		
248	tat ccc ata cct tcg ggt atg ttc att gag gat gcc aat acg cga ctc				2592
249	Tyr Pro Ile Pro Ser Gly Met Phe Ile Glu Asp Ala Asn Thr Arg Leu				
250	850	855	860		
252	act ctc ctc acg ggt caa ccg ctg ggt gga tct tct ctg gcc tcg ggc				2640
253	Thr Leu Leu Thr Gly Gln Pro Leu Gly Gly Ser Ser Leu Ala Ser Gly				
254	865	870	875	880	
256	gag cta gag att atg caa gat cgt cgc ctg gcc agc gat gat gaa cgc				2688
257	Glu Leu Glu Ile Met Gln Asp Arg Arg Leu Ala Ser Asp Asp Glu Arg				
258	885	890	895		

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/960,226

DATE: 01/28/2002
TIME: 13:49:07

Input Set : A:\12243-19SeqLst.txt
Output Set: N:\CRF3\01282002\I960226.raw

260	ggc ctg gga cag ggt gtt ttg gac aac aag ccg gtg ctg cat att tat	2736
261	Gly Leu Gly Gln Gly Val Leu Asp Asn Lys Pro Val Leu His Ile Tyr	
262	900 905 910	
264	cgg ctg gtg ctg gag aag gtt aac aac tgt gtc cga ccg tca aag ctt	2784
265	Arg Leu Val Leu Glu Lys Val Asn Asn Cys Val Arg Pro Ser Lys Leu	
266	915 920 925	
268	cat cct gcc ggc tat ttg aca agt gcc gca cac aaa gca tcg cag tca	2832
269	His Pro Ala Gly Tyr Leu Thr Ser Ala Ala His Lys Ala Ser Gln Ser	
270	930 935 940	
272	ctg ctg gat cca ctg gac aag ttt ata ttc gct gaa aat gag tgg atc	2880
273	Leu Leu Asp Pro Leu Asp Lys Phe Ile Phe Ala Glu Asn Glu Trp Ile	
274	945 950 955 960	
276	ggg gca cag ggg caa ttt ggt ggc gat cat cct tcg gct cgt gag gat	2928
277	Gly Ala Gln Gly Gln Phe Gly Gly Asp His Pro Ser Ala Arg Glu Asp	
278	965 970 975	
280	ctc gat gtg tcg gtg atg aga cgc tta acc aag agc tcg gcc aaa acc	2976
281	Leu Asp Val Ser Val Met Arg Arg Leu Thr Lys Ser Ser Ala Lys Thr	
282	980 985 990	
284	cag cga gta ggc tac gtt ctg cac cgc acc aat ctg atg caa tgc ggc	3024
285	Gln Arg Val Gly Tyr Val Leu His Arg Thr Asn Leu Met Gln Cys Gly	
286	995 1000 1005	
288	act cca gag gag cat aca cag aag ctg gat gtg tgc cac cta ctg	3069
289	Thr Pro Glu Glu His Thr Gln Lys Leu Asp Val Cys His Leu Leu	
290	1010 1015 1020	
292	ccg aat gtg gcg aga tgc gag gcg acg acg ctg act ttc ctg cag	3114
293	Pro Asn Val Ala Arg Cys Glu Ala Thr Thr Leu Thr Phe Leu Gln	
294	1025 1030 1035	
296	aat ttg gag cac ttg gat ggc atg gtg gcg ccg gaa gtg tgc ccc	3159
297	Asn Leu Glu His Leu Asp Gly Met Val Ala Pro Glu Val Cys Pro	
298	1040 1045 1050	
300	atg gaa acc gcc gct tat gtg agc agt cac tca agc tga	3198
301	Met Glu Thr Ala Ala Tyr Val Ser Ser His Ser Ser	
302	1055 1060 1065	
305	<210> SEQ ID NO: 2	
306	<211> LENGTH: 1065	
307	<212> TYPE: PRT	
308	<213> ORGANISM: Drosophila melanogaster	
310	<220> FEATURE:	
311	<221> NAME/KEY: misc_feature	
312	<222> LOCATION: (542)..(542)	
313	<223> OTHER INFORMATION: The 'Xaa' at location 542 stands for Pro, or Ser.	
315	<400> SEQUENCE: 2	
317	Met Lys Leu Cys Ile Leu Leu Ala Val Val Ala Phe Val Gly Leu Ser	
318	1 5 10 15	
321	Leu Gly Arg Ser Ser His His His His His Gly Glu Phe Asp Asp	
322	20 25 30	
325	Pro Ile Arg Pro Pro Leu Lys Val Ala Arg Ser Pro Arg Pro Gly Gln	
326	35 40 45	
329	Cys Gln Asp Val Val Gln Asp Val Pro Asn Val Asp Val Gln Met Leu	

Use of n and/or Xaa has been detected in the Sequence Listing.
 Review the Sequence Listing to insure a corresponding
 explanation is presented in the <220> to <223> fields of
 each sequence using n or Xaa.

VERIFICATION SUMMARY
PATENT APPLICATION: US/09/960,226

DATE: 01/28/2002
TIME: 13:49:08

Input Set : A:\12243-19SeqLst.txt
Output Set: N:\CRF3\01282002\I960226.raw

L:169 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:449 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2
L:1189 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8
L:1206 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9